THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 45

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BOHUMIL V. KRAL

Appeal No. 1998-3232
Application No. 08/738,920

ON BRIEF

Before KRATZ, JEFFREY SMITH, and PAWLIKOWSKI, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's refusal to allow claims 2, 4-17, 19 and 20, as amended after final rejection.[1] No other claims remain pending in this application.

BACKGROUND

[1] The amendment filed May 28, 1997 should be physically entered prior to final disposition of this application. See advisory action mailed June 09, 1997.

Appellant's invention relates to a process for producing copolymers of ethylene and a 1-olefin containing 4-10 carbon atoms. According to appellant (specification, page 4), by introducing a fresh supply of ethylene into a high pressure separator, the concentration of 1-olefin in the light phase is reduced as well as the solubility of the polymer product therein. Consequently, any problem of plugging of downstream equipment in which the light phase is handled is minimized. An understanding of the invention can be derived from a reading of claim 19, the sole independent claim on appeal. Claim 19 is reproduced below.

> 19. A process for producing copolymers of ethylene and a 1-olefin containing 4 to 10 carbon atoms, comprising contacting an ethylene polymerization catalyst with a feed stream in a polymerization reaction zone maintained under catalytic polymerization conditions comprising a pressure of from 500 to 3500 bars and a temperature of at least about 125°C;
>
> wherein the feed stream comprises ethylene and said 1-olefin;
>
> producing a polymerization reaction mixture comprising copolymer and unreacted 1-olefin, wherein the unreacted 1-olefin is present in a percentage to cause sufficient copolymer to dissolve in a light phase defined below so as to give rise to plugging of equipment downstream of a high pressure separation;

introducing the polymerization reaction mixture to a high pressure separation conditions comprising a temperature of at least about 40°C below that in the polymerization reaction zone, and a pressure at least

about 350 bars lower than that in the polymerization reaction zone pressure to separate the polymerization reaction mixture into a light phase and a dense phase; and

wherein the light phase comprises a major proportion of unreacted monomers, and the dense phase contains a major proportion of copolymer;

feeding a fresh supply of ethylene to said polymerization reaction mixture maintained under said high pressure separation conditions;

wherein said fresh supply of ethylene reduces the concentration of 1-olefin in the light phase, and thus reduces the solubility of the copolymer in the light phase and withdrawing the dense phase; and

introducing said light phase to said equipment downstream of said high pressure separation.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Kleintjens 4,725,667 Feb. 16, 1988

Durand et al. (Durand) 4,342,853 Aug. 03, 1982

Claims 2, 4-17, 19 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Durand in view of Kleintjens.

OPINION

The subject matter on appeal herein generally corresponds to the subject matter previously considered by another panel of the

Board in Appeal No. 95-1272. In Appeal No. 95-1272, the Board affirmed the examiner's decision rejecting the appealed claims under 35 U.S.C. § 103 over a combination of the same prior art references relied on in this appeal.[2]

As pointed out by appellant (brief, page 2), claim 19, which was added in a preliminary amendment in the present continuing application, now includes claim language regarding

[2] See Paper No. 34 of parent application No. 07/785,172.

the percentage of unreacted 1-olefin present such that a sufficient amount of polymer dissolves in the light phase to result in plugging of certain equipment. Hence, the claim language before us herein is somewhat different from the claim language before the Board in previously decided appeal No. 95-1272. Appellant argues against the propriety of the examiner's § 103 rejection based at least in part, on that newly added claim language (brief, page 3). Thus, this appeal requires us to fully understand[3] the scope of the claimed terminology pertaining to the concentration of unreacted 1-olefin and amount of polymer dissolved in the light phase as required by the claims under appeal.

Upon review of the entire record, we determine that one skilled in the relevant art would not be able to ascertain the scope of each of the appealed claims because no reasonably definite meaning can be ascribed to the language appearing in

[3] Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 103 begins with a determination of the scope of the claim. The properly interpreted claim must then be compared with the prior art. Claim interpretation must begin with the language of the claim itself. See Smithkline Diagnostics, Inc. v. Helena Laboratories Corp., 859 F.2d 878, 882, 8 USPQ2d 1468, 1472 (Fed. Cir. 1988).

claim 19, the sole independent claim on appeal, with respect to the required concentration of unreacted 1-olefin and amount of polymer dissolved in the light phase when that claim is read as a whole and in light of the accompanying specification. Accordingly, we reverse the examiner's rejections of claims 2, 4-17, 19 and 20 under 35 U.S.C. § 103 as unpatentable over the applied prior art on procedural grounds[4] and, pursuant to our authority under 37 CFR § 1.196(b) (1997), enter the following new ground of rejection under the second paragraph of 35 U.S.C.
§ 112.

Claims 2, 4-17, 19 and 20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention, for the reasons explained below.

Our review of claims under appeal reveals that we are unable to derive a proper understanding of the scope and

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[4] We emphasize that this reversal is a technical reversal rather than one based on the merits.

content thereof. Specifically, the terminology "wherein the unreacted
1-olefin is present in a percentage to cause sufficient copolymer to dissolve in a light phase defined below so as to give rise to plugging of equipment downstream of a high pressure separation" as recited in claim 19 is inconsistent with the other claim 19 requirement that "said fresh supply of ethylene reduces the concentration of 1-olefin in the light phase, and thus reduces the solubility of the copolymer in the light phase." This is so since the fresh supply of ethylene is introduced to the polymerization reaction mixture during the high pressure separation in which the light phase is obtained as set forth in claim 19. Thus, there would appear to be only one light phase

obtained from that high pressure separation. That obtained light phase would have a particular percentage of 1-olefin therein and a particular amount of copolymer dissolved therein.

The argued limitation (brief, page 3) relates to a light phase that contains a percentage of 1-olefin and dissolved copolymer that would "give rise to plugging of equipment...."[5] Yet, as set forth at page 4, lines 20-28 of appellant's specification, the present invention relates to a process wherein the concentration of 1-olefin and the amount of dissolved polymer in the light phase is reduced so as to reduce equipment plugging problems.

The fundamental purpose of a patent claim is to define the scope of protection[6] and hence what the claim precludes others from doing. All things considered, because a patentee has the

right to exclude others from making, using and selling the invention covered by a United States letters patent, the

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[5] Appellant refers to page 13, line 6, *et seq* and page 4, line 20, *et seq*. as supporting that argued limitation (Paper No. 36, page 2). The portion of page 13 of the specification referred to by appellant relates to a first example wherein a fresh supply of ethylene is not added to a high pressure separation (HPS) whereas the referred to portion of page 4 of the specification relates to a light phase having a reduced copolymer content and a reduced 1-olefin concentration wherein a fresh supply of ethylene is added to the HPS.

[6] See In re Vamco Machine & Tool, Inc., 752 F.2d 1564, 1577 n.5, 224 USPQ 617, 625 n.5 (Fed. Cir. 1985).

public must be apprised of what the patent covers, so that those who approach the area circumscribed by the claims of a patent may more readily and accurately determine the boundaries of protection in evaluating the possibility of infringement and dominance. See In re Hammack, 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970).

In the present case, we have reviewed the appellant's disclosure to help us determine the meaning of the above-noted claimed terminology. That review has revealed that the appellant's specification states at page 4 that:

> [a]n intended result of the injection of a fresh supply of ethylene into the reaction mixture for separation in the HPS is that it reduces the concentration of 1-olefin in the light phase present in the HPS, because of the dilution effect of the added ethylene. This in turn reduces the solubility of polymer in the light phase thus increasing the yield and minimizing the tendency of dissolved polymer to plug the equipment intended to handle such light phase downstream of the HPS.

However, that portion of the disclosure does not resolve the inherent conflict between the argued limitation requiring that

the percentage of unreacted 1-olefin is present such that a sufficient amount of copolymer dissolves in the light phase "defined below"[7] to result in plugging of certain equipment with the above-referenced claim limitations concerning a reduced

1-olefin concentration and a reduced amount of dissolved copolymer in the light phase being obtained with fresh ethylene addition to the high pressure separation. Absent such resolution, we are of the opinion that appellant does not particularly point out and distinctly claim the subject matter which they regard as invention in a manner such that a skilled person would be able to determine the metes and bounds of the claimed invention with the precision required by the second paragraph of 35 U.S.C. § 112. See In re Hammack, supra.

Considering the rejection of claims 2, 4-17, 19 and 20 under 35 U.S.C. § 103, we have carefully considered the subject matter defined by these claims, however, for reasons

[7] See claim 19. The light phase that is "defined below" in claim 19 is a light phase that is obtained from a high pressure separation having a fresh supply of ethylene added thereto.

stated supra in our new rejection under the second paragraph of 35 U.S.C. § 112

entered under the provisions of 37 CFR 1.196(b), no reasonably definite meaning can be ascribed to certain language appearing in the claims. As the court in In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970) stated:

> [a]ll words in a claim must be considered in judging the patentability of that claim against the prior art. If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious -the claim becomes indefinite.

In comparing the claimed subject matter with the applied prior art, it is apparent to us that considerable speculations and assumptions are necessary in order to determine what in fact is being claimed. Since a rejection based on prior art cannot be based on speculations and assumptions, see In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962), we are constrained to reverse, pro forma, the examiner's rejection of claims 2, 4-17, 19 and 20 under 35 U.S.C. § 103. We hasten to add that this is a procedural reversal rather

than one based upon the merits of the 35 U.S.C. § 103 rejection, as noted above.

CONCLUSION

The decision of the examiner to reject claims 2, 4-17, 19 and 20 under 35 U.S.C. § 103 is reversed and a new rejection of

claims 2, 4-17, 19 and 20 under 35 U.S.C. § 112, second paragraph has been added pursuant to provisions of 37 CFR § 1.196(b).

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that, "[a] new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new

ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .
>
> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED; 37 CFR § 1.196(b)

PETER F. KRATZ Administrative Patent Judge	)	
JEFFREY T. SMITH Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
BEVERLY A. PAWLIKOWSKI Administrative Patent Judge	)	

pfk/vsh

RONALD A. BLEEKER
MOBIL OIL CORPORATION
OFFICE OF LEGAL COUNSEL
INTELLECTUAL PROPERTY
3225 GALLOWS ROAD
FAIRFAX, VA 22037